

REMARKS

The last Office Action of November 1, 2006 has been carefully considered. Reconsideration of the instant application in view of the foregoing amendments and the following remarks is respectfully requested.

Claims 4-6, 8, 10-15, 17, 19-22, 24 are pending in the application. Claims 5, 12, 21, 22 have been amended. No claims have been canceled or added. No amendment to the specification has been made. No fee is due.

With respect to the particular locations in the foreign priority applications to provide support for the revisions to the specification in applicant's response of March 15, 2006, the Examiner is referred to page 7, last paragraph, lines 5, 7, and page 11, second full paragraph, line 4, of the foreign priority document.

The remark by the Examiner with respect to claim 22 is correct.

It is further noted that claims 5, 12, 22 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 17, 19-22, 24 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Pat. No. 6,068,588 to Goldowsky.

Claims 19-22, 24, 19-22, 24 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Pat. No. 4,994,078 to Jarvik.

Claims 8, 10-12, 19-22, 24 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. No. 6,116,862 to Rau et al. in view of Jarvik.

Claims 13-15 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Rau et al. in view of Jarvik and further in view of U.S. Pat. No. 4,957,504 to Chardak.

Claims 4-6, 19-22, 24 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. No. 4,688,998 to Olsen et al.

REJECTION UNDER 35 U.S.C. §112, SECOND PARAGRAPH

Applicants have amended claims 5, 12 and 22 to address the §112 rejection. These changes are self-explanatory so that no further discussion thereof is needed.

Withdrawal of the rejection under 35 U.S.C. §112, second paragraph is thus respectfully requested.

REJECTION. UNDER 35 U.S.C. §102(b) AND §103(a)

Applicant has amended claim 21 by expressly referring to the **direct** interposition of the blood pump into a blood vessel outside the heart (cf. paragraph [0018] of the instant specification) and to set forth the single-piece construction of vascular connection and housing end.

The present invention, as set forth in claim 21, is directed to the provision of a blood pump with an impeller which is specifically constructed for direct attachment of a blood vessel to the pump housing, in the absence of any separate connectors or vascular prostheses to be connected.

Applicant respectfully disagrees with the Examiner's rejection of claim 21 for the following reasons:

The Jarvik reference shows in Fig. 7 a blood pump situated within the left heart chamber. On the inflow side, the blood pump is attached to the opening of the mitral valve excised beforehand. On the outflow side, the blood pump is attached to the opening of the aortic valve or aorta root, also excised beforehand (cf. also Fig. 8)

The Jarvik device differs from the present invention, as set forth in claim 21 by the absence of a connection to a blood vessel on the inflow side. Rather Jarvik discloses a direct suturing between the inlet channels and the annulus of the mitral valve. Please note that a valve ring within the heart is not a blood vessel, as set forth in claim 21. Fig. 7 of Jarvik further shows the provision of a pump which is

provided exclusively for implantation in the left heart chamber and, as a consequence, is not sized and thus unsuitable for use in a blood vessel.

Figs. 29 and 38 of Jarvik correspond to the attachment technique as depicted in Fig. 7. It is noted in this context that the inflow graft (70) as well as the outflow graft (72) are each connected via a screw connector to the pump housing, and thus can be implanted independently from the pump. In other words, the inflow and outflow grafts do not form part of housing ends, as set forth in claim 21.

Please note also that Jarvik describes pumps that are intended for implantation exclusively **within** the cavity of the heart. In contrast thereto, claim 21, as now on file, sets forth a blood pump for direct interposition in a blood vessel **outside** the heart,

For the reasons set forth above, it is applicant's contention that Jarvik neither teaches nor suggests the features of the present invention, as recited in claim 21.

In Goldowsky, the inlet tube (10a) and the outlet tube (10b) are simple tubes which are slipped over the pump housing. In other words, the inlet and outlet tubes do not form part of housing ends, as set forth in claim 21. The Examiner's attention is also referred to the different shading between the tubes, on one hand, and the pump housing, on the other hand. This also underscores that the tubes are separate components and cannot be considered as being an integral part of the pump housing. It is also noted that Goldowsky is completely silent about the type of securing of the tubes to the pump housing; a fact that is indicative that this is secondary in the context of the Goldowsky disclosure.

For the reasons set forth above, it is applicant's contention that Goldowsky neither teaches nor suggests the features of the present invention, as recited in claim 21.

With respect to the Olsen reference, applicant wishes to note as follows: In col. 7, lines 6-11, Olsen states as follows: "*An attachment site 55 is provided on inlet 54 and an attachment site 57 is provided on outlet 56 for the purpose of readily adapting pump apparatus 50 to be interconnected into the appropriate size*

natural and/or artificial tubing []. The reference to "tubing" in this context is clearly an indication that only tubular vascular prosthesis of plastic or denaturized biological material ("biografts") are involved here. There is no disclosure of an attachment to blood vessels. This becomes even clearer when considering the passage in col. 9, line 3, where it is stated that "*[E]ach of inlets 204 and 206 have rims 205 and 207, respectively, formed thereon for ease in attaching tubing (not shown) to pump 200.*"

It is further noted that the Olsen reference is, in fact, silent as to the specifics of the attachment. The rims as an attachment site for a tubing to the pump are unsuitable for attachment to a natural vessel because suturing would be inapplicable. Again, despite a reference to a connection of the pump to a blood vessel (col. 5, lines 5-7), Olsen fails to teach or suggest in any shape or form a connection to a natural blood vessel that would allow an artisan to make use of the pump in this context. Unlike Olsen, the present invention describes a detailed non-detachable integration of the vascular connections directly to the pump housing that enables the artisan to effectively and lastingly suture a natural blood vessel directly to a rigid pump housing.

For the reasons set forth above, it is applicant's contention that Olsen neither teaches nor suggests the features of the present invention, as recited in claim 21.

In summary, it is applicant's contention that neither Jarvik, nor Goldowsky, nor Olsen, nor any other prior art reference, taken alone or in any combination, teaches or suggests the features of the present invention, as recited in claim 21.

As for the rejection of the retained dependent claims, these claims depend on claim 21, share its presumably allowable features, and therefore it is respectfully submitted that these claims should also be allowed.

Withdrawal of the rejection of claims 4-6, 8, 10-15, 17, 19-22 under 35 U.S.C. §§102(a) and 103(a) and allowance thereof are thus respectfully requested.

CITED REFERENCES

Applicant has also carefully scrutinized the further cited prior art and finds it without any relevance to the claims on file. It is thus felt that no specific discussion thereof is necessary.

CONCLUSION

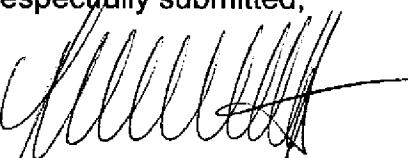
Applicant believes that when reconsidering the claims in the light of the above comments, the Examiner will agree that the invention is in no way properly met or anticipated or even suggested by any of the references however they are considered.

In view of the above presented remarks and amendments, it is respectfully submitted that all claims on file should be considered patentably differentiated over the art and should be allowed.

Reconsideration and allowance of the present application are respectfully requested.

Should the Examiner consider necessary or desirable any formal changes anywhere in the specification, claims and/or drawing, then it is respectfully requested that such changes be made by Examiner's Amendment, if the Examiner feels this would facilitate passage of the case to issuance. If the Examiner feels that it might be helpful in advancing this case by calling the undersigned, applicant would greatly appreciate such a telephone interview.

Respectfully submitted,

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